

I claim:

1. An electronic price label (ESL) system comprising:
an ESL receiving a message transmitted from a communications base station (CBS), the
ESL including a transmitter for transmitting a response to the message by reflectively modulating
a continuous wave (CW) signal with a pseudo-random code sequence; and
the CBS receiving and correlating the reflectively modulated CW signal.
2. The ESL system of claim 1 wherein the CW signal is transmitted by the CBS
during a time period in which the ESL responds.
3. The ESL system of claim 1 wherein the pseudo-random code sequence is selected
by the ESL from a plurality of pseudo-random code sequences to correspond to a particular
response.
4. The ESL system of claim 1 wherein the pseudo-random code sequence is
modulated onto a carrier, the carrier reflectively modulating the CW signal received from the
CBS.
5. The ESL system of claim 3 wherein the carrier oscillates at about 32 kHz.
6. The ESL system of claim 3 wherein the remodulated spectrum of the response is
centered around the carrier.
7. The ESL system of claim 1 wherein the message is transmitted to the ESL using a
Manchester coded amplitude modulated carrier.
8. The ESL system of claim 1 wherein the message includes a command instructing
the ESL to perform an action and the response includes an acknowledgement indicating the ESL
successfully performed the action.

9. The ESL system of claim 1 wherein the ESL selects a seed value corresponding to the response.

10. The ESL system of claim 9 wherein the ESL generates the pseudo-random code sequence based on the seed value.

11. The ESL system of claim 10 wherein the ESL modulates the code sequence onto a carrier to generate a digitally modulated signal.

12. The ESL system of claim 11 wherein the ESL transmits the response by varying a reflection of the CW with the digitally modulated signal.

13. The ESL system of claim 12 wherein the CBS bandpass filters the response and performs demodulation to remove the carrier.

14. The ESL system of claim 13 wherein the CBS correlates the response.

15. The ESL system of claim 14 wherein the CBS relays the response to a host system for identification.

16. An electronic shelf label (ESL) communication method comprising the steps of:
transmitting a message to an ESL from a communications base station (CBS);
transmitting a response to the message by reflectively modulating a continuous wave (CW) signal with a pseudo-random code sequence; and
receiving and correlating the reflectively modulated CW signal by the CBS.

17. The method of claim 16 further comprising the step of:
selecting a seed value corresponding to the response by the ESL.

18. The method of claim 17 further comprising the step of:
generating the pseudo-random code sequence based on the seed value by the ESL.

19. The method of claim 18 further comprising the step of:

modulating the code sequence onto a carrier to generate a digitally modulated signal by the ESL.

20. The method of claim 19 further comprising the step of:
transmitting the response by varying a reflection of the CW with the digitally modulated signal.

21. The method of claim 20 further comprising the steps of:
bandpass filtering the response; and
performing demodulation to remove the carrier.

22. The method of claim 21 further comprising the step of:
correlating the response.

23. The method of claim 22 further comprising the step of:
relaying the correlated response to a host system for identification.

24. An electronic price label (ESL) comprising:
an ESL receiving a message transmitted from a communications base station (CBS), the ESL including a transmitter for transmitting a response to the message by reflectively modulating a continuous wave (CW) signal with a pseudo-random code sequence.

25. The ESL of claim 24 wherein the CW signal is transmitted by the CBS during a time period in which the ESL responds and the CBS receives and correlates the reflectively modulated CW signal.

26. The ESL of claim 24 wherein the pseudo-random code sequence is selected by the ESL from a plurality of pseudo-random code sequences to correspond to a particular response.

27. The ESL of claim 24 wherein the pseudo-random code sequence is modulated onto a carrier, the carrier reflectively modulating the CW signal received from the CBS.

28. The ESL of claim 24 wherein the message is transmitted to the ESL using a Manchester coded amplitude modulated carrier.

29. The ESL of claim 28 wherein the message includes a command instructing the ESL to perform an action and the response includes an acknowledgement indicating the ESL successfully performed the action.

30. The ESL of claim 24 wherein the ESL selects a seed value corresponding to the response.

31. The ESL of claim 30 wherein the ESL generates the pseudo-random code sequence based on the seed value.

32. The ESL of claim 31 wherein the ESL modulates the code sequence onto a carrier to generate a digitally modulated signal.

33. The ESL of claim 32 wherein the ESL transmits the response by varying a reflection of the CW with the digitally modulated signal.